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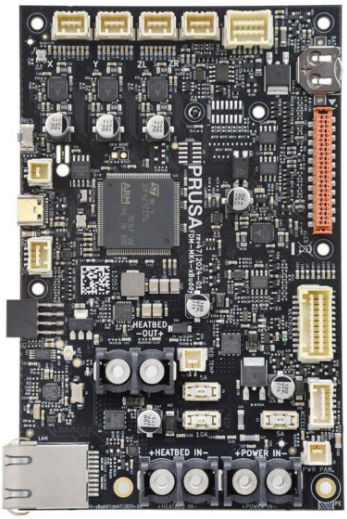
How to replace the xBuddy board (CORE One)



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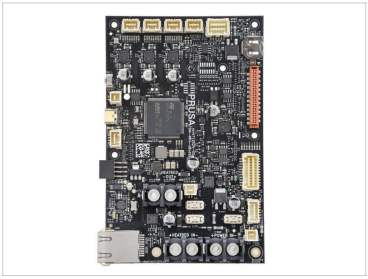
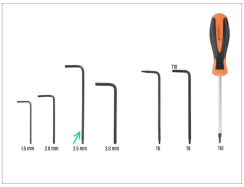
STEP 1 Introduction

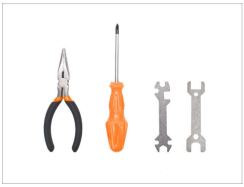


- This guide will take you through the **xBuddy board** replacement on your **Prusa CORE One**.
- All necessary parts are available in our eshop prusa3d.com.

  Note that you have to be logged in to have access to the spare parts section.

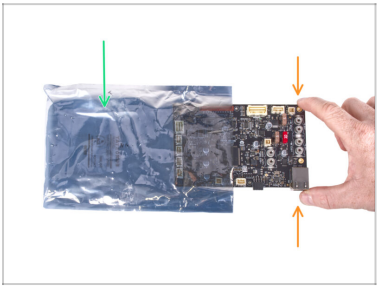
STEP 2 Tools necessary for this guide





- **Please prepare tools for this guide:**
  - 2.5mm Allen key
  - T10 Screwdriver
  - Needle-nose pliers
  - Phillips Screwdriver
  - Flush cutters are recommended as an optional tool.

STEP 3 Important: Electronics protection



⚠ WARNING: Make sure to **protect the electronics against electrostatic discharge (ESD)**. Always unpack the electronics right before you need them!

- Here are some tips to prevent damage to the electronics:
  - Keep the electronics inside the supplied ESD bag right until you are asked to install them.
  - Always touch the sides of the board only while handling it. Avoid touching the components on the surface.
  - Before you touch the electronics use any conductive (metal) structure nearby to neutralize the possible static charge from your hands.
  - Be extra cautious in rooms with carpets, which are often a source of electrostatic energy.
  - Clothes made of wool or certain synthetic fabrics can easily gather static electricity too. It is safer to wear cotton clothing for the assembly.

STEP 4 Printer Preparation (Part 1)



- Close the printer's door.
- Unload the filament. Visit the menu *Filament* and select *Unload filament*.
- Unload the filament from the printer.
- Remove the filament spool from the printer.

⚠ Ensure the printer has completely cooled down.

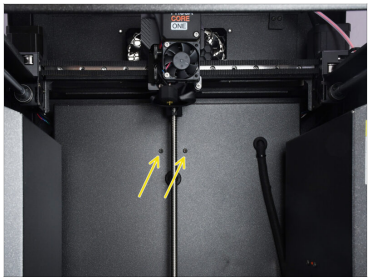
- On the printer screen, navigate to *Preheat -> COOLDOWN* and wait for the temperatures to drop to ambient levels. This may take several minutes.

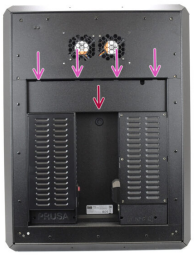
STEP 5 Printer Preparation (Part 2)



- Open the menu *Control > Move Axis > Move Z* and set it to 100mm or more.
- Wait until the heatbed moves down.
- Turn the printer off using the switch on the back.
- Disconnect the printer from power.

STEP 6 Back Cover Removal (Part 1)





- On the inside of the printer, remove the two screws holding the back cover.
- On the back of the printer, slide the center cover downwards.
  - Ensure the four hooks on top of the cover are disengaged from the metal chassis.

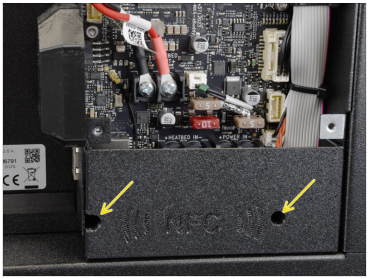
STEP 7 Back Cover Removal (Part 2)

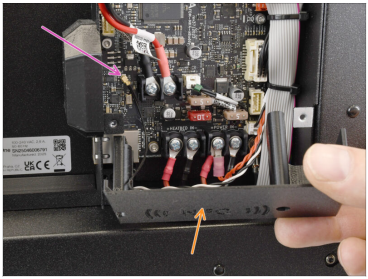
- Move the cover slightly towards the back.
- Pull the bottom part of the cover outward while tilting the top toward the printer. This will unhook it from the cable bundle behind.

STEP 8 xBuddy Cover Removal

- Remove the six screws holding the xBuddy cover.
- Remove the cover by sliding it out.

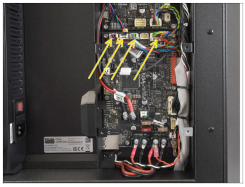
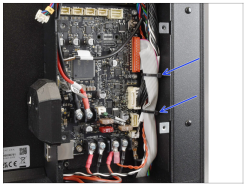
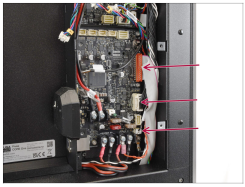
STEP 9 NFC Antenna Cover Removal





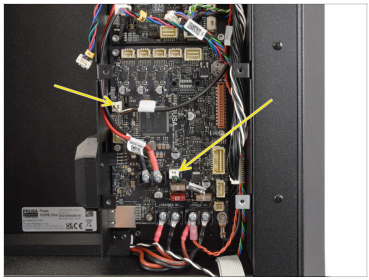
- Using the 2.5mm Allen key, remove the two M3x10 screws holding the NFC Antenna cover.
- Disconnect the NFC Antenna cable from the xBuddy board by gently lifting the tiny golden connector.
- Remove the NFC Antenna cover.

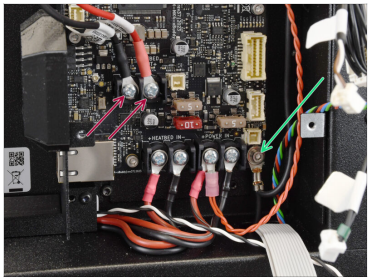
STEP 10 Cables Disconnection

- Disconnect the top row of the cables from the motors and the Extension board connected to the xBuddy board.
  - Move the connectors away from the board.
  - Note **there is a safety latch on each of the connectors**, which must be pressed in, in order to remove the plug.
- Cut off and remove the zip ties holding the cable bundle on the side of the xBuddy box.
  - Be extremely careful not to damage any of the cables, when cutting the zip ties!!!
- Disconnect the xLCD connector, the extruder main cable connector and the Power Panic connectors.

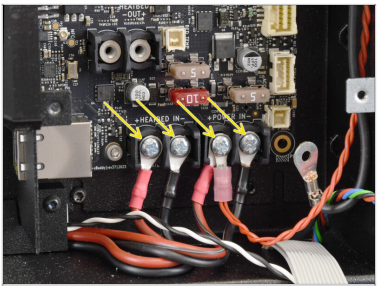
STEP 11 Cables Disconnection 2





- Disconnect the Door sensor and the Heatbed thermistor connectors.
- Using the Phillips screwdriver, remove the terminal screws and disconnect the heatbed power cables.
- Using the 2.5mm Allen key, remove the M3x6 screw with the washer and disconnect the PE grounding cable.

STEP 12 Cables Disconnection 3



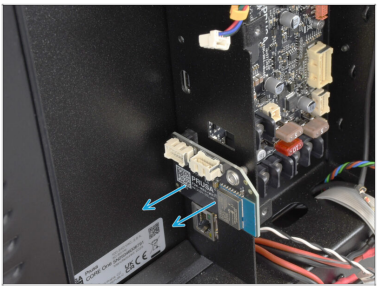
- Using the Phillips screwdriver, remove the terminal screws and disconnect the power cables from the PSU.

  Note **there is an extra red lead from the Extension board**, under one of the positive power terminals.

STEP 13 Wi-Fi Cover Removal

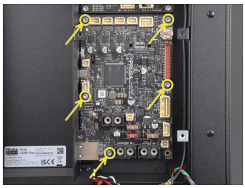
- On the side of the xBuddy box, remove the M3x12 screw holding the Wi-Fi.
- Lift the rear part of the cover away from the electronics box, in order to disengage it.
- Then, remove the cover entirely.

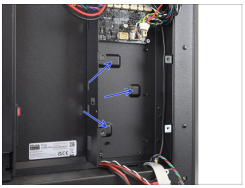
STEP 14 Wi-Fi Removal



- Disconnect and remove the Wi-Fi board by moving it sideways from the electronics box.

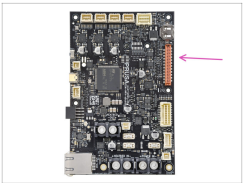
STEP 15 xBuddy Removal





- Remove the marked five M3x6 screws holding the xBuddy board.
  - In order to remove the xBuddy board, we will need to disengage it from the box first. Note that there are connectors on its right side, that fit into the respective slots.
  - To disengage the board, lift its right side and then move it to the right, removing it from the box.
- After removing the board, clean off the elevated surfaces on the back of the xBuddy box, from any leftovers of the grey thermal pads.

STEP 16 xBuddy Parts Preparation



- **For the following steps, prepare:**
- xBuddy board (1x) *new one*
- Thermal pads set (1x)
- Zip tie *(amount depending on how many of those you had to cut off)*

STEP 17 Thermal Pad Application

- Peel off the white protective layer from all thermal pads.

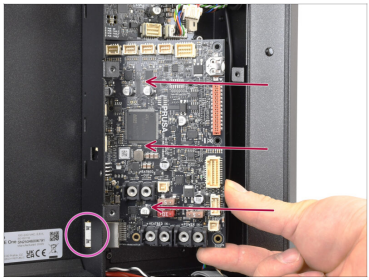
  ⚠ Always touch the sides of the electronics board while manipulating it. Avoid touching the chips, capacitors and other parts of the electronics.

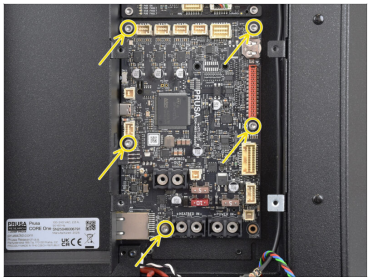
- Attach the pads onto the dedicated areas on the back of the new xBuddy board.

  ⓘ The surface of the xBuddy board should be clean and degreased to ensure better adhesion.

- Peel off the blue protective layer from all thermal pads.

STEP 18 xBuddy Installation





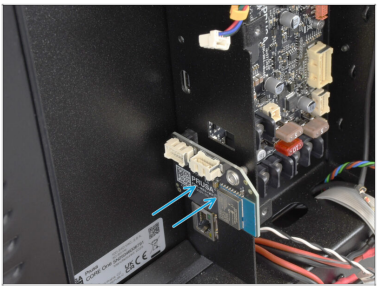
- Insert the xBuddy board into the electronics box.
- Make sure to engage the silver connector into the opening on the left side first, followed by leaning the board towards the back of the box.

  ⚠ Make sure none of the cables is getting trapped behind the xBuddy board.

- Align the screw openings and fix the board in place using the five M3x6 screws in the marked openings.

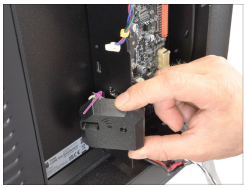
  ⚠ Leave the screw opening on the bottom right free, for now!

STEP 19 Wi-Fi Installation



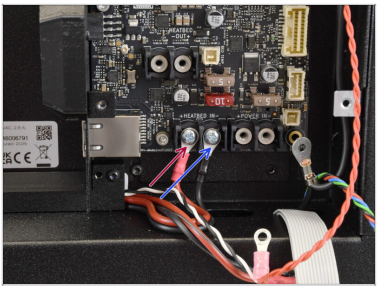
- Install the Wi-Fi module onto the side of the electronics box.

STEP 20 Wi-Fi Cover Installation

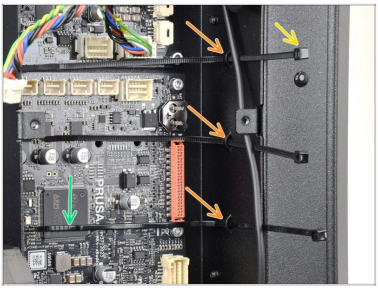

- Take the Wi-Fi cover. First, moving it at an angle, hook it by the edge of the Wi-Fi module.
- Then, move the back part of the cover towards the electronics box.
- Fix the assembly in place using the M3x12 screw.

STEP 21 Power Cables Connection



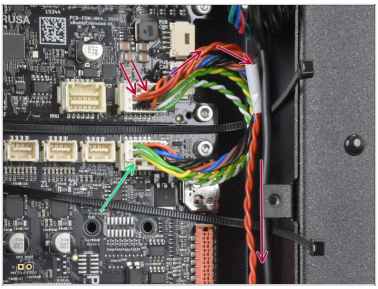
- Connect the **RED** cable from the PSU onto the first **+ (POSITIVE)** power terminal on the bottom of the xBuddy board. Secure it in place by tightening the power terminal screw with a Phillips screwdriver.
- Connect the **BLACK** cable from the PSU to the second **(NEGATIVE)** power terminal on the xBuddy board.

STEP 22 Zip-Tie Installation



- Install the zip ties into the attachment points on the right side of the xBuddy box.
  - Orient the zip tie heads outwards to allow for tightening later.
  - Ensure the zip tie tails are positioned above the xBuddy board for easy access later.

STEP 23 Extension Cable Connection



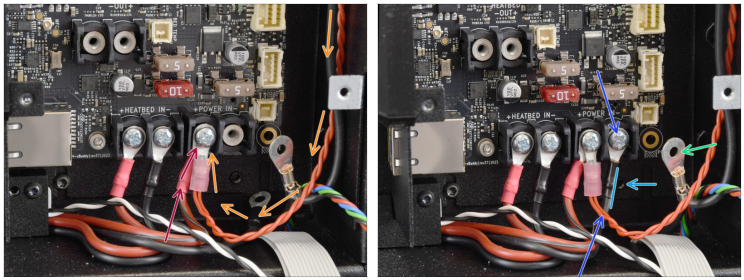
- Connect the short cable from the Extension board to the connector on top of the xBuddy labeled MMU.

  ⚠ Make sure the part of the short cable with the extra RED wires **is connected to the connector on the right of the Extension board**. Otherwise, the printer wouldn't work!

  Verify that the connector is connected exactly as seen in the pictures.

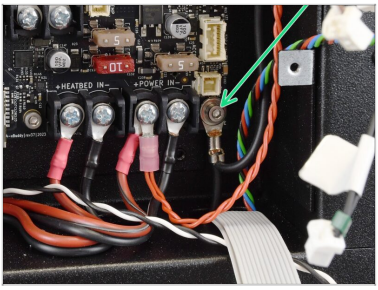
- Guide the extra RED wires from this connector downward, towards the power terminals.

STEP 24 Power Cables Connection 2



- Guide the red cable from the Extension board and guide it towards the positive + power terminal.
- Take the **RED** cable from the PSU. Stack it together with the red cable from the Extension board. Attach both cables to the **+ (POSITIVE)** power terminal on the bottom of the xBuddy board.
- Take the **BLACK** cable from the PSU. Connect it to the **- (NEGATIVE)** power terminal.
  - Ensure the PE grounding connector on the side remains unconnected at this stage.
  - Move the cable to the left slightly, to make space around the threaded opening underneath it. Otherwise, the plastic cover wouldn't fit. Only then, tighten the power terminal screw using the Phillips screwdriver.

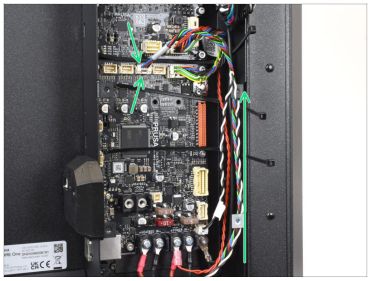
STEP 25 PE Cable Connection



- Fix the PE Grounding cable to the bottom right opening on the xBuddy board using the M3x6 Screw and a washer.

  Make sure the washer is above the round connector. Tighten the screw using the 2.5mm Allen key.

STEP 26 Cables Connection 1

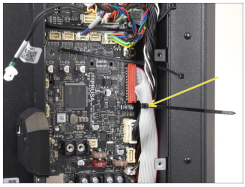


- Connect the **Power Panic** cable from the PSU to the bottom right connector on the xBuddy board.
  - Guide the remaining length of the cable along the side of the electronics box.
- Route the Z motors cable from below, up along the side of the electronics box. Connect the **Z-motors** cable to the **ZL** port on the xBuddy board.

  ⓘ Technically, it doesn't matter whether you use the ZL or ZR port on the xBuddy, as both are connected in parallel.

STEP 27 Cables Connection 2





- Guide the **Extruder main cable** from the top, along the side of the electronics box. Connect it to the xBuddy board.
- Guide the xLCD cable up, along the side of the electronics box.
  - Connect the xLCD cable to the xBuddy. Note that the small notch on the connector should be oriented towards the triangle sign on the board.
- Fix the cables in place using the new bottom zip tie.

⚠ Do not overtighten the zip tie.
Carefully trim the excess avoiding damaging the cables.

STEP 28 Cables Connection 3

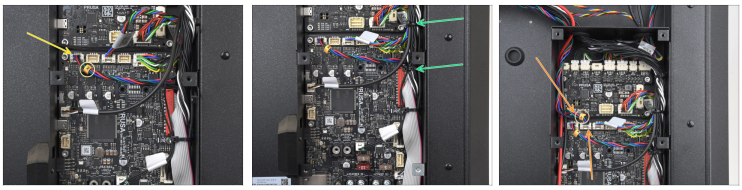
- Connect the **Heatbed Thermistor** cable into the plug next to the Heatbed power terminals.

  This cable has a green plastic label with the "H" marking.

- Connect the **DOOR SENSOR** cable to the connector on the xBuddy board, labeled A_TEMP.

  This cable is shielded in black and contains one white and one brown wire.

STEP 29 Cables Connection 4



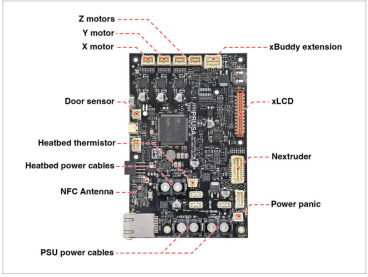
- Connect the **X motor** cable to the first connector in the top row on the xBuddy board.
  - Fix the cable bundle on the right of the electronics box in place using the previously prepared zip ties. Carefully cut off remaining zip tie.
- Connect the **Y motor** cable to the second connector in the top row on the xBuddy board.

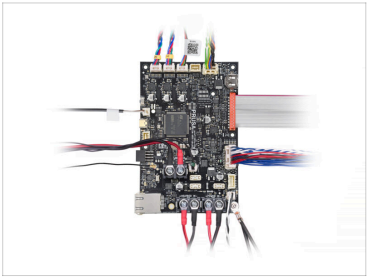
STEP 30 Cables Connection 5

- Connect the **BLACK heatbed power** cable coming from top, into the **- (NEGATIVE)** heatbed power terminal. Fix it in place using the terminal screw. Tighten the screw using the Phillips screwdriver.
- Connect the **RED heatbed power** cable coming from top, into the **+ (POSITIVE)** heatbed power terminal.

  Fix it in place using the terminal screw. Tighten the screw using the Phillips screwdriver.

STEP 31 Wiring Check



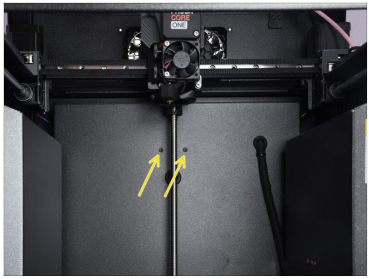


⚠ Before closing the electronics box, **verify that all connections** are plugged in according to the indicated diagram.

STEP 32 xBuddy Cover Installation

- Reinstall the xBuddy box cover and fix it in place using the six M3x4bT screws. Make sure none of the cables is getting pinched behind the cover!
- Your text goes here

STEP 33 Rear Cover Installation



- Reinstall the rear sheet metal cover onto the printer. Make sure none of the cables is getting pinched behind it.
- Push the cover upwards until the four metal tabs engage into the slots on the rear part of the printer.
  - While pushing the cover on the back upwards, **reach into the inside of the printer** and fix the cover in place using the two M3x4bT screws.

STEP 34 Turning the Printer On

- Connect the printer to the power.
- Turn the printer on.
- Close the printer's door.
- Visit the menu *Control* > *Calibration & Tests* and **run the tests to verify everything works correctly**.

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